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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,611	05/11/2006	Hyoung-Joon Jin	TUV-031.01	6317

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FOLEY HOAG, LLP
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EXAMINER

MONDESI, ROBERT B

ART UNIT	PAPER NUMBER
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1652

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12/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,611	Applicant(s) JIN ET AL.	
	Examiner Robert B. Mondesi	Art Unit 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-48 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of the Claims

Claims 31-48 are new and have been added. **Claims 1-48** are currently pending.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-15, drawn to a method of preparing a fibrous protein smectic hydrogel, comprising: a. contacting an aqueous fibrous protein solution with a solvent that is not miscible with water; b. allowing the solution in contact with the solvent to age at about room temperature or under conditions preventing evaporation or both; and c. collecting the resulting fibrous protein smectic hydrogel; and optionally allowing the hydrogel to dry.

Group II, claim(s) 16-23, drawn to a method of obtaining predominantly one enantiomer from a mixture of enantiomers, comprising the steps of: a. contacting an aqueous fibrous protein solution with a solvent that is not miscible with water; b. allowing the solution in contact with the solvent to age at about room temperature or under conditions preventing evaporation or both; c. allowing the enantiomers of the mixture to diffuse selectively into the resulting fibrous protein smectic hydrogel in solution; d. removing the smectic hydrogel from the solution; e. rinsing predominantly a first enantiomer from the surface of the smectic hydrogel; and f. extracting predominantly a second enantiomer from the interior of the smectic hydrog.

Group III, claim(s) 24-30, drawn to a fibrous protein smectic hydrogel prepared according to the method of preparing a fibrous protein smectic hydrogel, comprising: a. contacting an aqueous fibrous protein solution with a solvent that is not miscible with water; b. allowing the solution in contact with the solvent to age at about room temperature or under conditions preventing evaporation or both; and c. collecting the resulting fibrous protein smectic hydrogel; and optionally allowing the hydrogel to dry.

Group IV, claim(s) 31-41, drawn to a chiral composition comprising a liquid crystalline ordered solid having a nanoscale multilayered structure, wherein each layer comprises a molecularly oriented fibrous protein, and wherein the layers define an interlayer region having nanoscale chiral pores or channels.

Group V, claim(s) 42-46, drawn to a method of obtaining predominantly one enantiomer from a mixture of enantiomers of a chiral molecule, the method comprising: a) contacting the mixture of enantiomers with a chiral composition comprising a liquid crystalline ordered solid having a nanoscale multilayered structure, wherein each layer comprises a molecularly oriented fibrous protein, and wherein the layers define an interlayer region having nanoscale chiral pores or channels; and b) isolating predominantly one enantiomer within the chiral composition.

Group VI, claim(s) 47, drawn to an isolated silk protein oriented to provide chiral surfaces capable of use as a chiral selector in a chiral separation.

Group VII, claim(s) 48, drawn to a method of using an isolated silk protein as a chiral selector in a chiral separation.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The technical feature linking Groups I-VII appears to be that they all relate to a fibrous protein, wherein the fibrous protein could be a silk protein (this technical feature is shared amount all groups at best when the term "technical feature" is used in very broad manner- the above groups do not necessaly share a technical feature. Group I is drawn to a method of preparing a fibrous protein smectic hydrogel, comprising: a. contacting an aqueous fibrous protein solution with a solvent that is not miscible with water; b. allowing the solution in contact with the solvent to age at about room temperature or under conditions preventing evaporation or both; and c. collecting the resulting fibrous protein smectic hydrogel; and optionally allowing the hydrogel to dry,

whereas Group VI is drawn to an isolated silk protein oriented to provide chiral surfaces capable of use as a chiral selector in a chiral separation). However, Ayub et al., 1993 (cited in the IDS files March 3, 2006) disclose a fibrous protein wherein the fibrous protein is silk.

Therefore the technical feature linking the inventions of Groups I-VII does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

Accordingly, Groups I-VII are not so linked by the same or a corresponding special technical feature as to form a single inventive concept.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Group I: wherein the solvent is chloroform (claim 2); wherein the solvent is iso-amyl alcohol (claim 3); wherein the solvent is hexane (claim 4).

Group IV: wherein the liquid crystalline ordering comprises a smectic phase (claim 33); wherein the liquid crystalline ordering comprises a chiral smectic phase (claim 34); wherein the liquid crystalline ordering comprises a chiral liquid crystalline phase (claim 35).

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims

subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Mondesi whose telephone number is 571-272-0956. The examiner can normally be reached on 9am-5pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert B Mondesi/
Examiner
Art Unit 1652
November 28, 2007

RBM